Introducing our AUTHORS

acs chemical biology

Stephen M. Fuchs

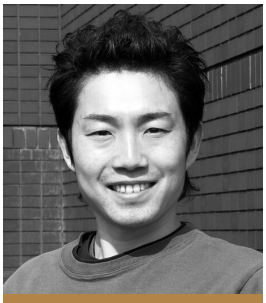
Current position: Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Postdoctoral Fellow with Prof. Brian D. Strahl
Education: The Pennsylvania State University, B.S. in chemistry, 1999; University of Wisconsin–Madison, Ph.D. in biochemistry with Prof. Ronald T. Raines, 2006
Nonscientific interests: Music, photography

The focus of my graduate work was on the role of cationic charge in facilitating the cellular internalization of macromolecules. Most of the work in this field has concentrated on cell-permeable peptides such as polyarginine and a region of the HIV-1 TAT protein. I was interested in exploring the internalization of other protein scaffolds. In this study, I used GFP as a model and modified surface residues to give the protein a positive patch. I was able to show that this patch allowed for uptake of this GFP by cells in culture and that this uptake was mediated by binding to cell-surface glycosaminoglycans. I believe a similar approach can be used to design other cell-permeable proteins and macromolecules. (Read Fuchs' article on p 167.)

Matthias Strieker

Current position: Philipps-Universität, Marburg, Germany, Department of Chemistry/Biochemistry, Ph.D. candidate with Prof. Dr. Mohamed A. Marahiel
Education: Imperial College, London, Department of Chemistry, research project with Prof. T. Welton, 2005; Philipps-Universität, Marburg, Germany, diploma in chemistry, 2006
Nonscientific interests: Hiking, baseball, photography, contemporary art, music

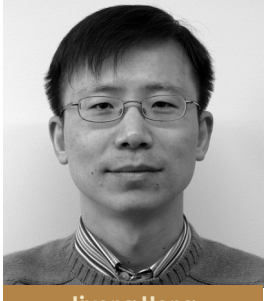
In this time of increasing microbial resistance against conventional antibiotics, it is important to find new treatments. Thus, multiresistant-bacteria-targeting antibiotics, produced by large non-ribosomal peptide synthetases, and their building blocks are the focus of my work. Interestingly, a diverse subset of non-proteinogenic amino acids, including β-hydroxylated residues, is incorporated into these antibiotics and is crucial for bioactivity. My article gives structural insights into how in nature β-hydroxylated amino acids are synthesized stereoselectively by non-heme iron-dependent oxygenases. That is a challenging task for the synthetic chemist. I find it attractive that 3D information enables scientists to manipulate and bioengineer this class of modifying enzymes. For me, this is a promising tool for the synthesis of new building blocks for various natural products, including antibiotics. (Read Strieker's article on p 187 and Point of View p 152.)



Yutaka Natori

Current position: The University of Tokyo, Department of Chemistry, Ph.D. candidate with Prof. Yoshio Umezawa
Education: Tohoku University, B.S. in chemistry, 2002; The University of Tokyo, M.S. in chemistry, 2004
Nonscientific interests: Bicycle traveling

My research interest is the development of fluorescent analytical methods that can analyze the mechanisms of cellular activities and properties of several biomolecules. In this paper, I developed a simple genetic screening method to discriminate the proteins localized in mitochondrial intermembrane space (IMS) from those localized in other cellular compartments. An IMS-localized protein was randomly mutated, and a peptide sequence necessary for IMS localization was analyzed by this method. The minimal peptide sequence I found here can readily direct any exogenous proteins into the IMS. This screening method will also allow the discovery of specific amino acids and domains that are necessary for locating interesting proteins into target subcellular compartments. (Read Natori's article on p 176.)



Jiyong Hong

Current position: Duke University, Department of Chemistry, Assistant Professor
Education: Seoul National University, B.S. in pharmacy, 1993; Seoul National University, M.S. in pharmaceutical chemistry with Prof. Deukjoon Kim, 1995; The Scripps Research Institute, Ph.D. in chemistry with Prof. Dale Boger, 2001
Postdoctoral work: The Scripps Research Institute with Prof. Peter Schultz, 2001–2005
Nonscientific interests: Spending time with my daughter, watching movies

My research interests are to develop unique and efficient synthetic strategies that will enable rapid access to molecular complexity and structural diversity and to explore the modes of action of biologically active natural products in order to investigate intracellular signaling pathways and identify novel targets for drug design. These research activities use a combination of synthetic organic chemistry and cell biology to synthesize and screen small-molecule modulators of signaling pathways and to identify the molecular targets of the hit compounds. Through these multidisciplinary approaches, I am systematically exploring the cellular components and molecular events that embody immune response, drug abuse, and cell differentiation. (Read Hong's article on p 171.)

Published online March 16, 2007 • 10.1021/cb700049k CCC $37.00